

## Three Species of the Tribe Tortricini (Lepidoptera, Tortricidae) New to Korea

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**Abstract** Three species of the tribe Tortricini, *Acleris paradiseana* Walsingham, *Acleris caerulescens* (Walsingham), and *Trophocosta cyanoxantha* (Meyrick), are reported for the first time from Korea. Among them, the genus *Trophocosta* is newly recorded to the Korean fauna. Morphological characteristics of the species are briefly redescribed with the illustrations of adults and genitalia.

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**Key words** Lepidoptera, Tortricidae, Tortricini, systematics, new record, Korea

### INTRODUCTION

The tribe Tortricini is one of the largest group in the subfamily Tortricinae, and 49 species belonging to four genera, *Acleris* Hübner, *Paracroesia* Yasuda, *Paratorna* Meyrick, and *Spatalistis* Meyrick, have been known from Korea (Byun, Bae, and Park, 1998). In the present study, two species of *Acleris* are newly recorded from Korea. The genus, *Trophocosta* Razowski, 1964 is also reported for the first time from Korea with record of one species, *Trophocosta cyanoxantha* (Meyrick).

Taxonomic comment and brief biologies for the species are given. External morphology of the male and female, including their genitalia characters, were examined and are shortly redescribed with illustrations. The specimens examined are deposited in the collections of the Forest Museum, National Arboretum (FMNA) and partly in the Department of Biology, University of Incheon (UIB).

### SYSTEMATIC ACCOUNT

***Acleris paradiseana* Walsingham** 산마가목잎말이나방 (신칭)

(Figs 1, 4)

*Oxygrapha paradiseana* Walsingham, 1900, Ann. Mag. nat. Hist. (7)5: 371.

*Acalla paradiseana*: Kennel, 1908: 67, pl. 3, fig. 6; Matsumura, 1931: 1051.

*Peronea paradiseana*: Issiki, 1950: 489, fig. 1329.

*Acleris paradiseana*: Inoue, 1954: 78; Obratzsov, 1956: 153; Okano, 1959: 268, pl. 178, fig. 22; Yasuda, 1965: 19, figs 13, 58, 107; Razowski, 1966: 255, figs 354, 355, 356; Yasuda, 1975: 168, figs 155, 482, 483, 631; Kawabe, 1982, 1: 82, 2: 163, pl. 19: 9–11.

Wingspan 21 mm (Fig. 1). Head and labial palpus greenish yellow; antenna greenish grey; thorax greenish. Forewing subrectangular, not expanded terminally; costa very strongly curved basally, then almost straight in apical two thirds; apex protruded outwardly, more or less pointed; termen widely concave just below apex; tornus rounded. Colouration of forewing greenish yellow to green, with yellowish sprinkled or reticulate at basal and costal area; dorsal parts yellowish orange or golden orange mixed with olive green; termen dark orange mixed with rusty orange; two large groups of erected scales near middle and two or three small ones in subterminal and subapical parts; apex tinged with rusty brown. Cilia creamy white except on apical and tornal areas. Hindwing brownish grey, paler basally, with slightly protruding apex. Cilia pale brownish grey, much paler dorsally, with a distinct subbasal line.

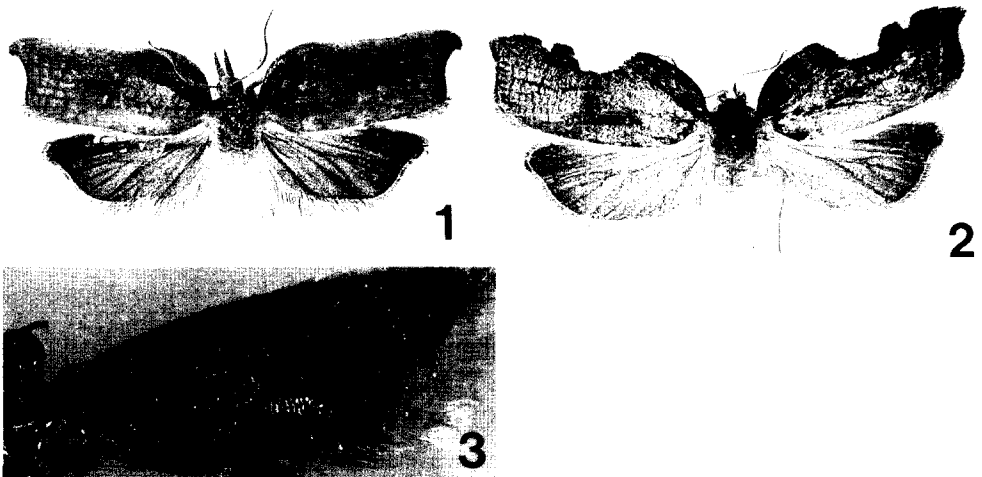
Male genitalia (Fig. 4). Tegumen moderate in size, rather slender, slightly concave at top; socii large, long, drooping with shortly pointed at termination; tuba analis broad medially, with fairly long subterminal plate. Valva with rather short costa, weakly sclerotized, gently curved dorsally beyond middle; sacculus broad, well sclerotized, deeply concave beyond half, terminal portion forming a rectangular plate; brachiola broad, smaller than those of allied species. Aedeagus slender, curved near middle, narrower towards apex, with numerous small cornuti in vesica.

*Material examined*. 1 ♂, Mt. Chiaksan, Weonju, Gangweon Province, 12 VII 1997 (Y.S. Bae & N.H. Ahn)–coll. UIB.

*Distribution*. Korea (new record), Japan, and Russia (Amur, E. Siberia).

*Host plants*. *Sorbus sambucifolia* Roemer and *Malus pumila* Mill in Japan (Yasuda, 1965; 1975)

*Remarks*. The shape of the forewing is very characteristic showing a very long and acute apex.



**Figs 1–3.** Adults: 1. *Acleris paradiseana* Walsingham, ♂; 2. *Acleris caerulescens* (Walsingham), ♀; 3. *Trophocosta cyanoxantha* (Meyrick), ♂.

***Acleris caerulescens* (Walsingham) 굴피나무잎말이나방 (신칭)**

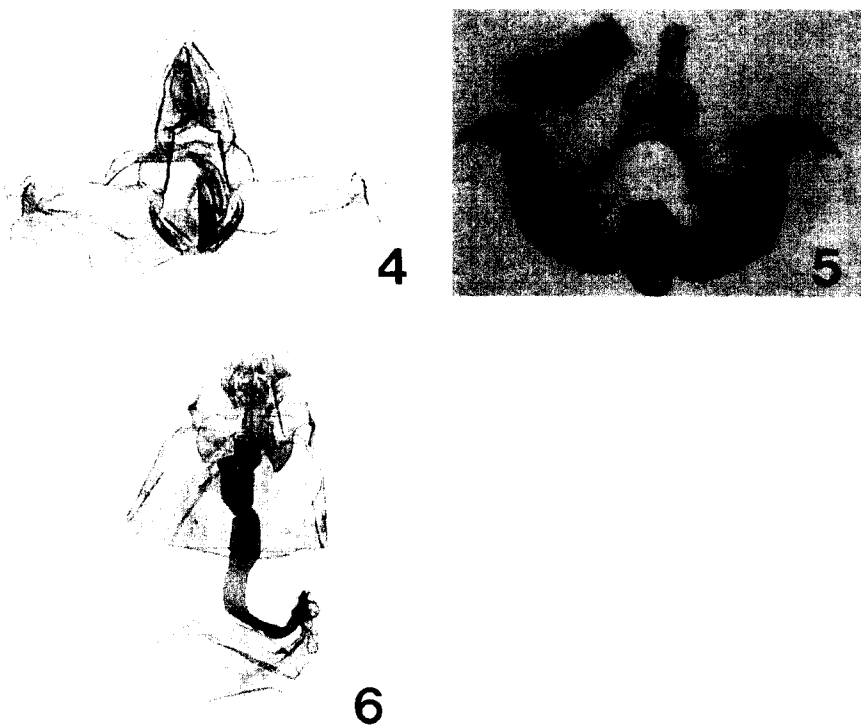
(Figs 2, 6)

*Oxygrapha caerulescens* Walsingham, 1900, Ann. Mag. nat. Hist. (7) 5: 370.*Rhacodia staudingeri* Kennel, 1901, Dt. Ent. Z. Iris 13: 205.*Acalla caerulescens*: Kennel, 1908: 66, pl. 3, fig. 5; Matsumura, 1931: 1060.*Acleris caerulescens*: Inoue, 1954: 78; Obraztsov, 1956: 152; Okano, 1959: 268, pl. 178, fig. 23;

Yasuda, 1965: 19, figs 14, 59, 95; Razowski, 1966: 253, figs 351, 352, 353; Yasuda, 1975: 169, figs 156, 484, 485, 632; Kawabe, 1982, 1: 82, 2: 163, pl. 19: 12.

*Oxigrapha caerulescens*: Issiki, 1957: 86, fig. 481.

Wingspan 22 mm (Fig. 2). Head, labial palpus and antenna pale brownish; thorax olive-greyish brown, with a brownish crest. Forewing subrectangular, not expanded terminally; costa strongly curved basally, slightly concave near middle; apex slightly protruded, sharpened; termen widely concave just below apex; tornus rounded. Ground colour greyish brown to dark brown tinged with light yellow; blackish erected scales present near middle; two creamy white costal markings present, the middle one large, the posterior one small, subtriangular. Colouration of one semi-circular milky white spot developed at middle of costa followed with a tiny milky white spot. Cilia concolourous with ground colour, paler in apex. Hindwing



**Figs 4-6.** Genitalia: 4. *Acleris paradiseana* Walsingham, ♂; 5. *Trophocosta cyanoxantha* (Meyrick), ♂; 6. *Acleris caerulescens* (Walsingham), ♀.

dark greyish brown, paler basally. Cilia pale yellowish brown, with a distinct subbasal line.

Female genitalia (Fig. 6). Papillae anales large, broad posteriorly. Sterigma short, stout, with posterior edge rounded, protruding medially, slightly sharpened towards apex, well sclerotized. Ostium bursae broad, rounded, sclerotized; ductus bursae rather long, about two times as long as corpus bursae, narrower towards corpus bursae; corpus bursae relatively small, delicately; signum vestigial.

*Material examined.* 1 ♀, Mt. Bangtaesan, Gangweon Province, 8 IX 1996 (B.K. Byun)-coll. FMNA.

*Distribution.* Korea (new record), Japan, China, and Russian Far East.

*Host plant.* *Pterocarya rhoifolia* Sieb. et Zucc. in Japan (Yasuda, 1975).

*Remarks.* Razowski (1966) indicated that the adult hibernates during the winter and flies in the next spring. The moths can be observed in July, August, and September in Japan. Only one specimen was collected at Mt. Bangtaesan in September, 1996.

### ***Trophocosta cyanoxantha* (Meyrick) 꼬마점무늬앞말이나방 (신칭)**

(Figs 3, 5)

*Spatalistis cyanoxantha* Meyrick, 1907, J. Bombay nat. Hist. Soc. 17: 979; Meyrick, 1912: 54; Meyrick, 1913: 55; Diakonoff, 1941: 432; Clarke, 1958: 224, pl. 112, fig. 2-2b.

*Trophocosta cyanoxantha*: Razowski, 1964: 393; Razowski, 1966: 101, figs 124-126.

Wingspan 10 mm. Head dark yellow to ochreous yellow. Forewing slender, expanded terminally; costa slightly and uniformly arched to apex; apex fairly long, pointed; termen strongly oblique. Ground colour yellowish brown, with rusty colouration; costa from 1/3 to apex yellowish orange, rather paler near apex; termen light yellow, tinged with brown anteriorly; delicate and tiny brownish ochreous spots developed along costa; metallic fuscous leaden-greyish markings developed posteriorly. Cilia pale brownish yellow, with light yellowish tip. Hindwing rather slender, greyish brown. Cilia brownish yellow.

Male genitalia (Fig. 5). Tegumen small, weakly sclerotized; socii drooping, fairly broad, somewhat hairy; tuba analis elongate, somewhat membranous. Valva broad basally, with pointed apex, and with weakly sclerotized costa; sacculus fairly narrow, with nearly same thickness from base to apex, strongly sclerotized, deeply concave beyond middle, sharpened terminally; juxta rather large, well sclerotized. Aedeagus short, stout, narrower medially, with two short cornuti in vesica.

*Material examined.* 1 ♂, Mt. Daedunsan, Jeonbug Province, 3 V 1991 (B.K. Byun)-coll. FMNA.

*Distribution.* Korea (new record), Sri Lanka, South India, and East Java.

*Remarks.* The moths fly in March to June in the Oriental region (Razowski, 1966). Only one specimen was collected at Mt. Daedunsan in May, 1991. This species is characteristic by the shape of the forewing and the colouration. The male genitalia of the species are also separable from the allies by the strongly reduced costa of valva and long sacculus.

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## REFERENCES

- Byun, B.K., Y.S. Bae, and K.T. Park. 1998. In Park, K.T. (ed.), *Insects of Korea 2: Illustrated catalogue of Tortricidae in Korea (Lepidoptera)*, pp. 317. Seoul.
- Clarke, J.F.G. 1958. *Catalogue of the type specimens of Microlepidoptera in the British Museum (Natural History) described by Edward Meyrick 3: 1-600.*, Br. Mus. (Nat. Hist.), London.
- Inoue, H. 1954. Tortricidae. In Inoue, H. (ed.), *Check list of the Lepidoptera of Japan 1: 78-98*. Rikusuisha, Tokyo.
- Kawabe, A. 1982. Tortricidae and Cochylidae, In Inoue, H. et al. (eds), *The Moths of Japan 1: 62-258, 2: 158-183*, pls 14-31. Kodansha, Tokyo.
- Kennel, J. 1901. Neue Wickler des palaearctischen Gebietes. *Dt. ent. Z. Iris* 13: 205-305.
- Kennel, J. 1908-1921. Die Palaearctischen Tortriciden. *Zoologica* 21(54). 742 pp., 24 pls. Stuttgart.
- Matsumura, S. 1931. *6000 Illustrations of Insects of the Japan-Empire*. 1527pp, Tokyo.
- Meyrick, E. 1912-1913. *Exotic Microlepidoptera 1: 1-64 (1912), 65-160 (1913)*. London.
- Obraztsov, N.S. 1956. Die Gattungen der palaerktischen Tortricidae I. Allgemeine aufteilung der Familie und die Unterfamilien Tortricinae und Sparganothinae, 2. Fortsetzung. *Tijdschr. Ent.* 99: 107-154.
- Okano, M. 1959. Tortricidae. In Inoue, H. et al. (eds), *Iconographia insectorum Japonicorum Colore naturali Edita 1: 263-268*, pls 176-178. Hokuryukan, Tokyo.
- Razowski, J. 1964. Studies on the Cochylidae (Lepidoptera). Part. 9. Sept. Revision of Caradja's collection with descriptions of new species. *Acta zool. Cracov.* 9: 337-354.
- Razowski, J. 1966. *World fauna of the Tortricini (Lepidoptera, Tortricidae)*, 576pp, Krakow.
- Walsingham, L. 1900. Asiatic Tortricidae. *Ann. Mag. nat. Hist.* (7) 5: 368-469, 451-469, 481-490; (7) 6: 121-137, 234-243, 401-409, 429-448.
- Yasuda, T. 1965. The Japanese species of the tortricid genus *Acleris* (Lepidoptera). *Bull. Univ. Osaka Prefect.* (B)17: 11-49.
- Yasuda, T. 1975. The Tortricinae and Sparganothinae of Japan (Lepidoptera, Tortricidae). *Bull. Univ. Osaka Prefect.* (B)27: 18-64, 80-251.

## 韓國產 무늬잎말이나방族 (나비目, 잎말이나방科)의 3未記錄種

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잎말이나방科에 속하는 무늬잎말이나방族의 3種 <*Acleris paradiseana* Walsingham 산마가목잎말이나방 (신칭), *Acleris caerulescens* (Walsingham) 굴피나무잎말이나방 (신칭), *Trophocosta cyanoxantha* (Meyrick) 꼬마점무늬잎말이나방 (신칭)>을 우리나라에서 처음으로 보고하며, 이들의 분류학적 특징을 간략히 再記載하고, 채집된 成蟲 및 암·수 生殖器를 도해하였다. 이 중 *Trophocosta*屬은 우리나라에서 처음으로 기록되는 屬이다.

검색어 : 나비목, 잎말이나방과, 무늬잎말이나방족, 분류, 한국

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